Enhancing Understanding of Psychotropic Medications

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Psychopharmacology Revolution

- Plant products
- Alcohol
- Barbiturates
- Amphetamines
- Neuroleptic
- MAOI
- Tricyclic

Continuing Revolution

- Lithium
- Tegretol
- Depakote
- SSRI
- Clozaril
- SSRI +
- Atypicals
- Newer anticonvulsants

OVERVIEW

- Neuronal function
- Medication Education
- Drug Class Reviews
  - Antipsychotics
  - Antidepressants
  - Mood Stablizers
  - Antianxiety Agents

Medication Classes Structural vs. Functional

- Tricyclic
- Phenothiazine
- Benzodiazepine

- Antidepressant
- Antipsychotic
- Anxiolytic
- Mood Stabilizer

- SSRI
- MAOI

Pharmacokinetics

- Absorption
- Distribution
- Metabolism
- Elimination

Pharmacodynamics

- Drug actions
- May be additive, antagonistic or synergistic
- Receptors
- Reuptake
- Synaptic metabolism

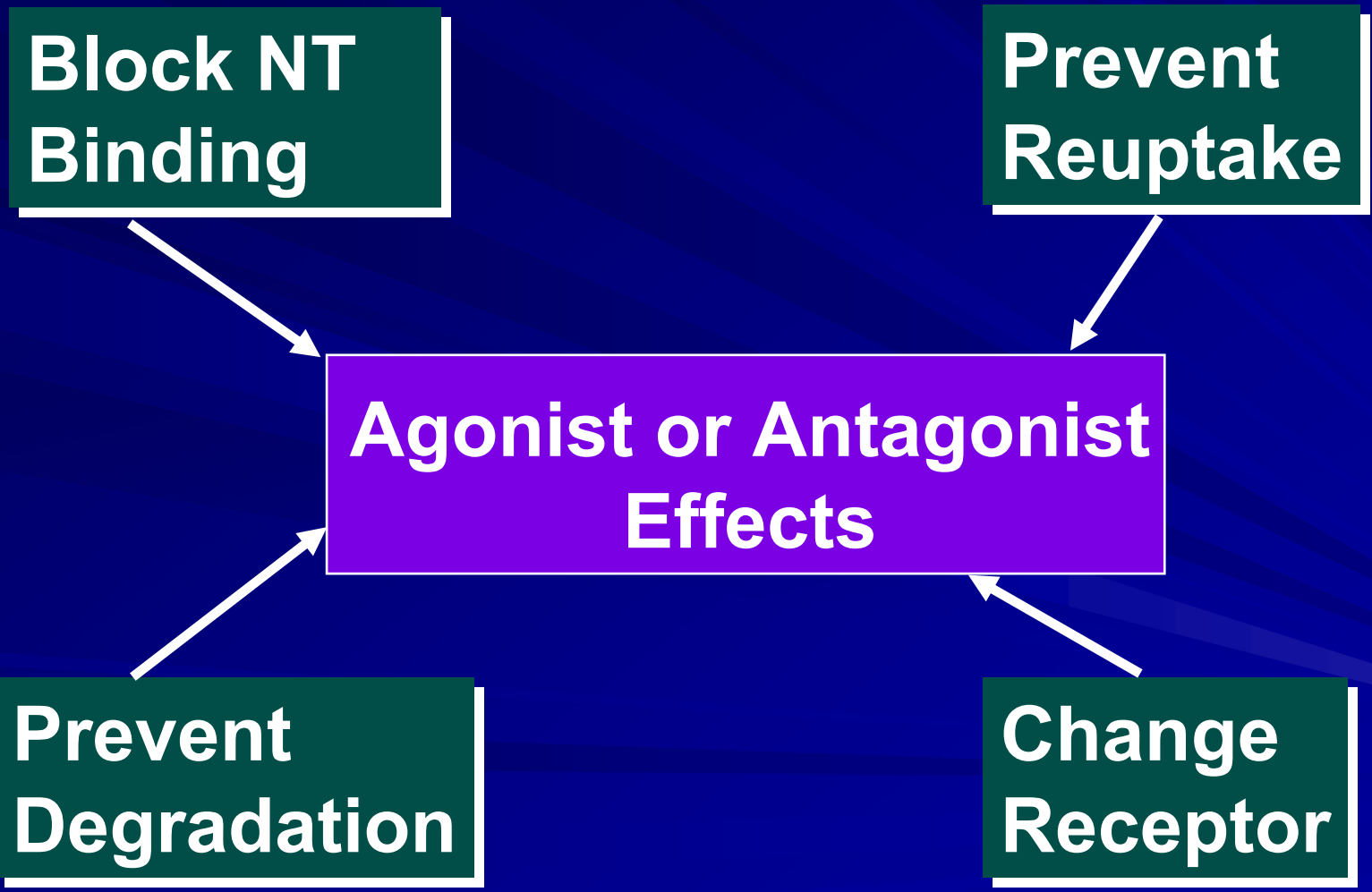
Common Neurotransmitters

- Acetylcholine (ACh)
- Norepinephrine (NE)
- Epinephrine (Epi)
- Dopamine (DA)
- Serotonin (5HT)
- GABA
- Opiates
- Amino Acids, Peptides

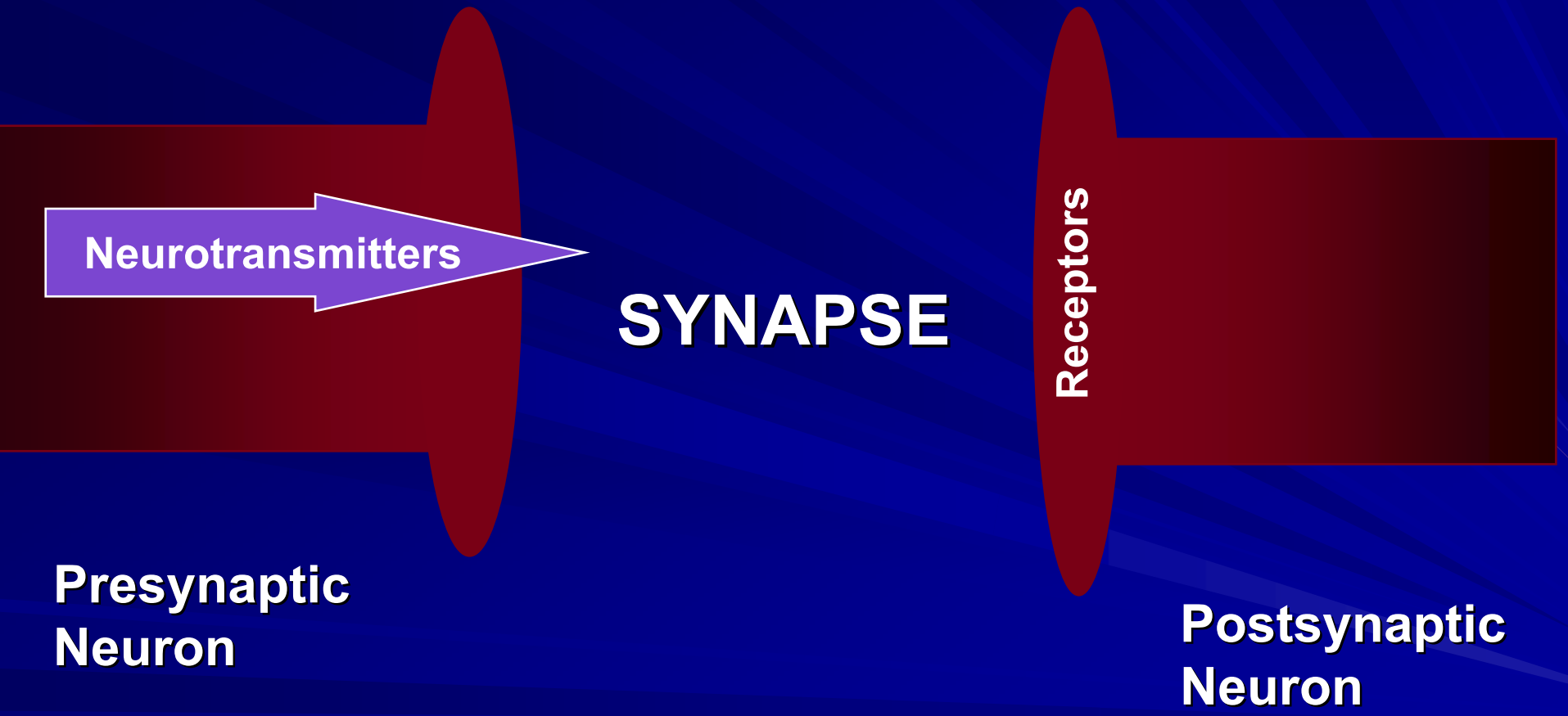
RECEPTOR PHARMACOLOGY

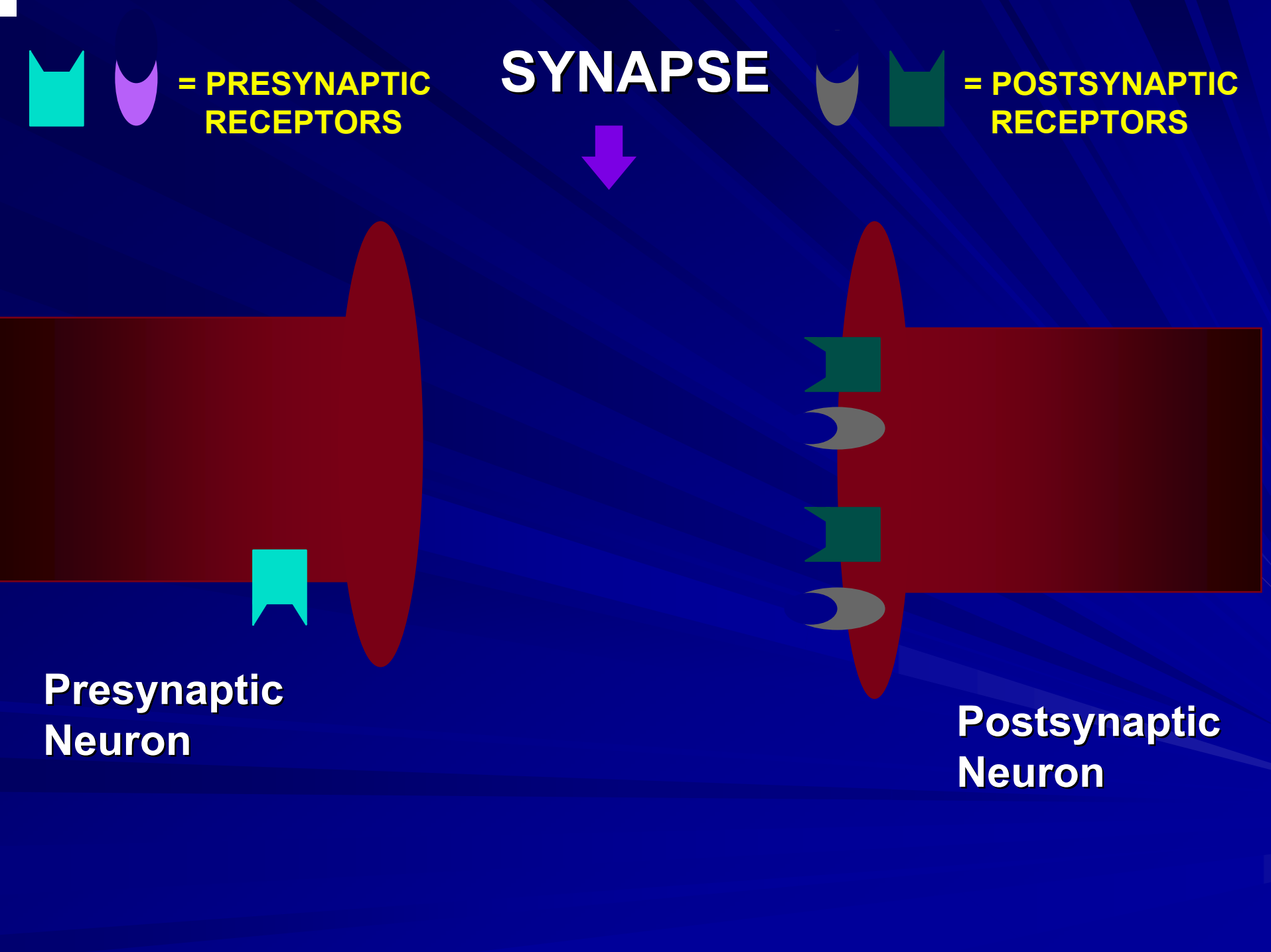
- Full AGONIST - drug that mimics the effects of the neurotransmitter (turns receptor completely on)
- Partial AGONIST – turns receptor on between 1% and 99%
- ANTAGONIST- drug that blocks the effects of the neurotransmitter

PHARMACOLOGY



NEUROANATOMY

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SYNAPSE
= POSTSYNAPTIC RECEPTORS
Presynaptic Neuron
Postsynaptic Neuron

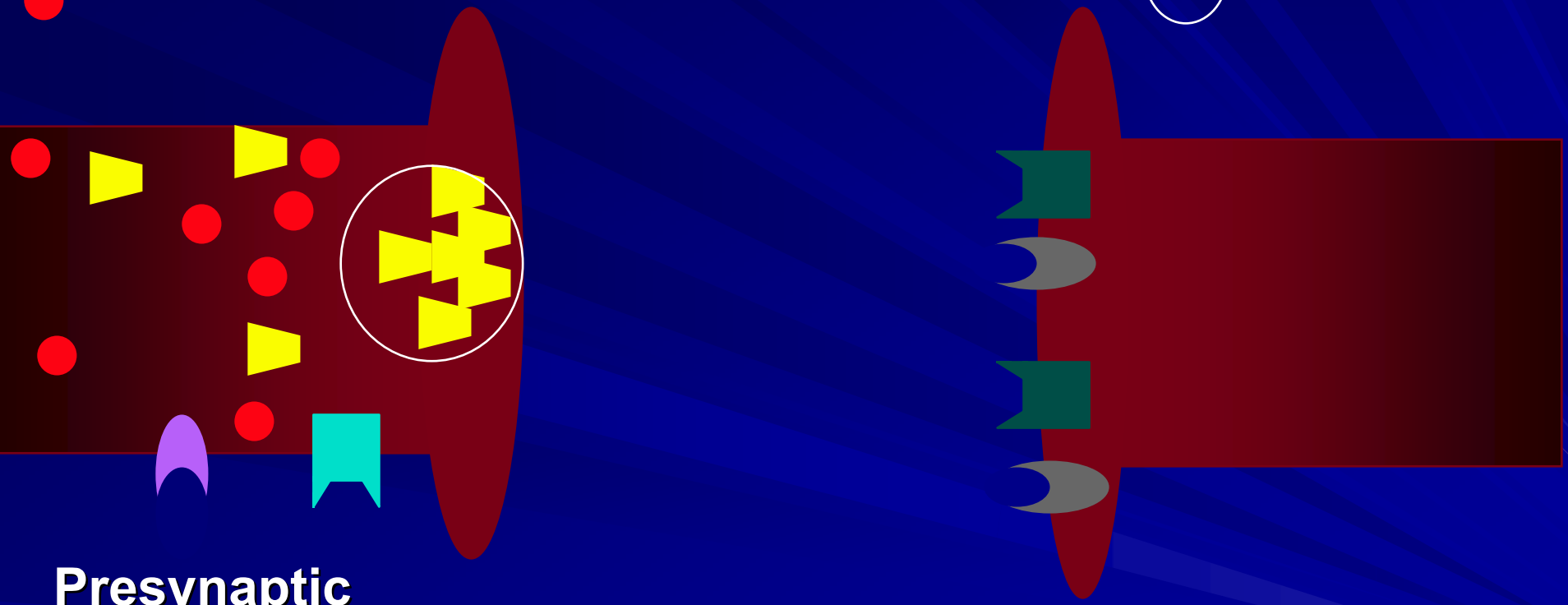
SYNAPSE

= PRESYNAPTIC RECEPTORS

= NEUROTRANSMITTERS

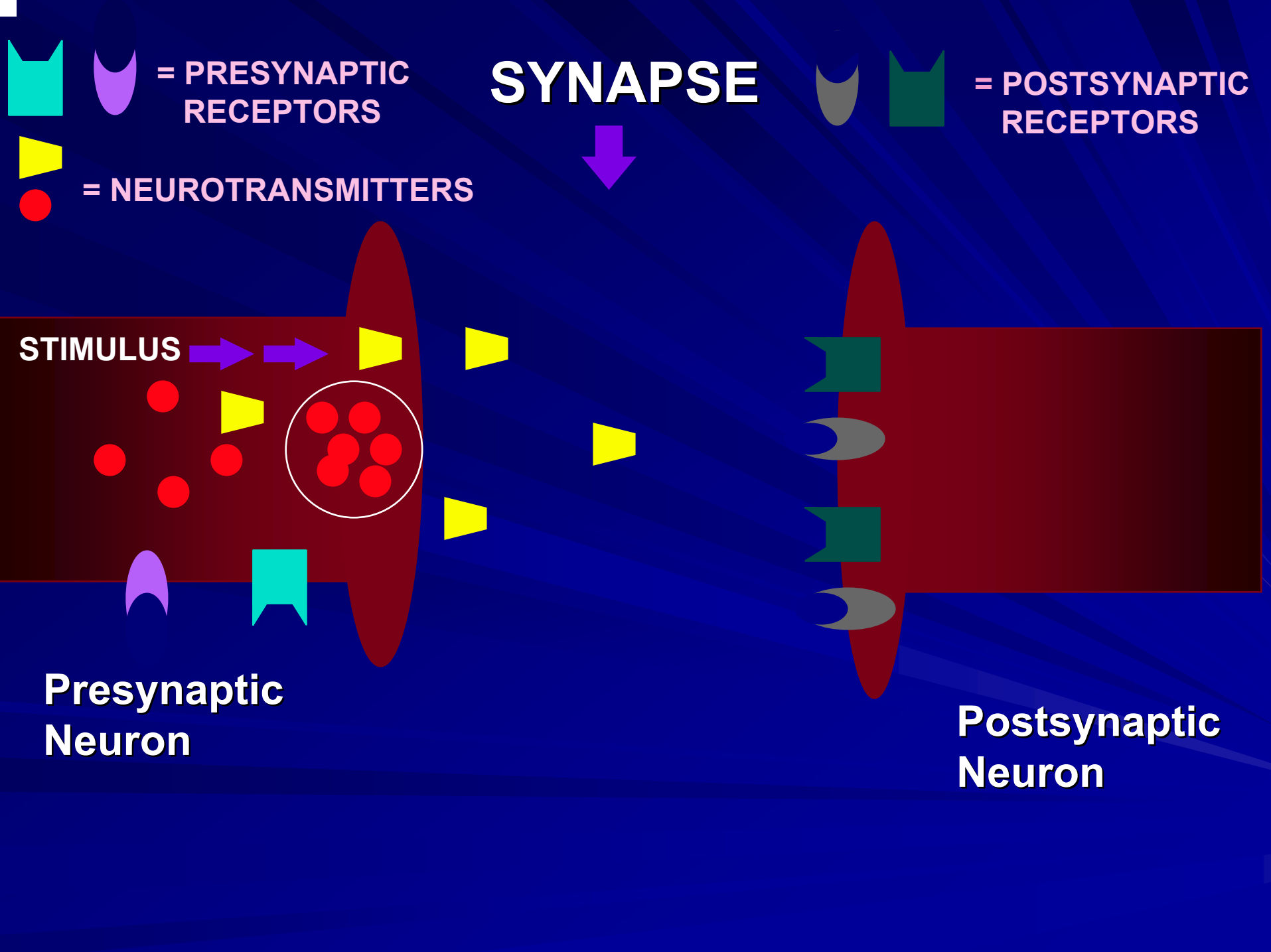
= POSTSYNAPTIC RECEPTORS

= VESICLES



Presynaptic Neuron

Postsynaptic Neuron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Presynaptic Neuron
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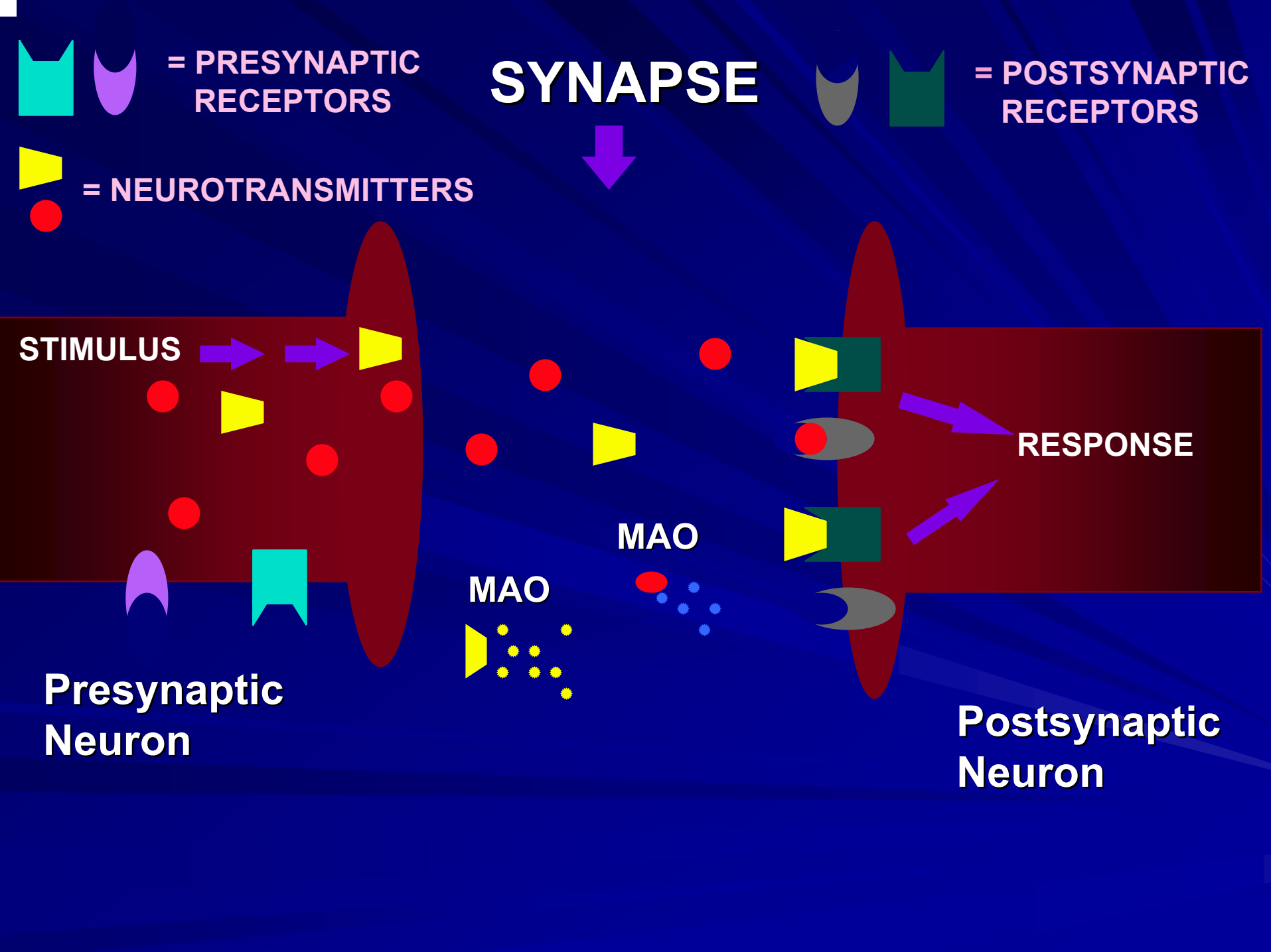
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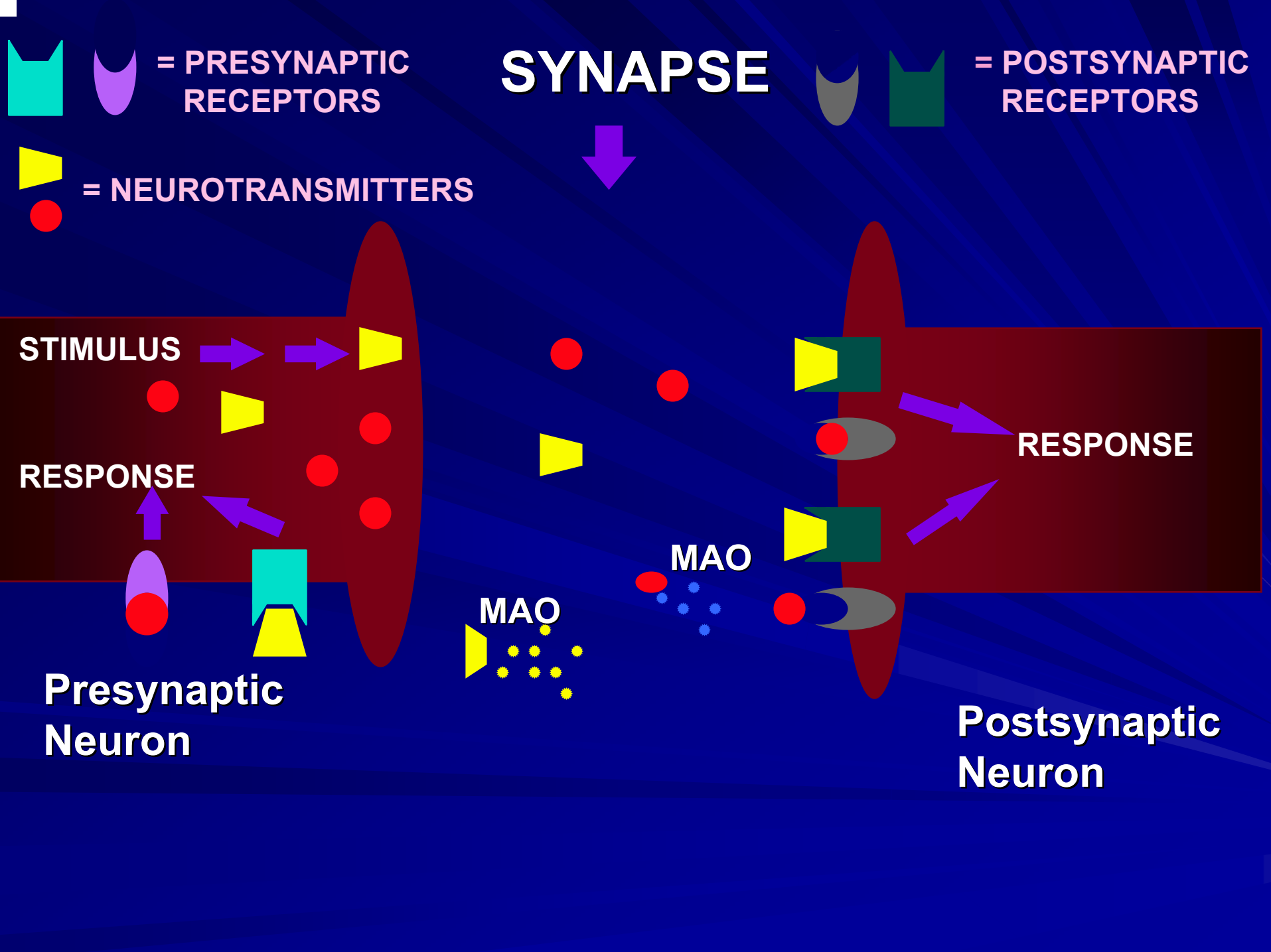
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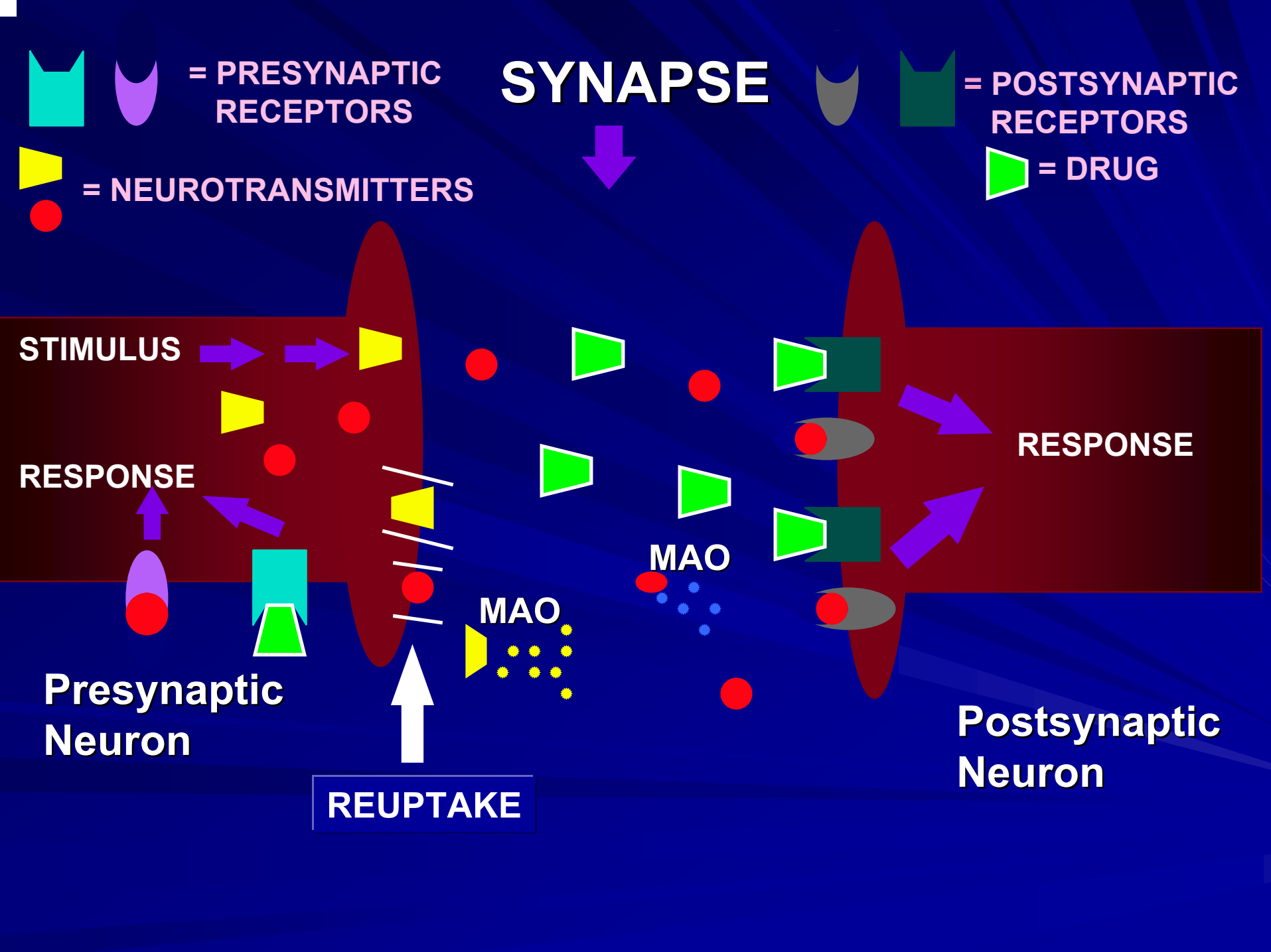
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= NEUROTRANSMITTERS
= DRUG
STIMULUS
RESPONSE
RESPONSE
MAO
MAO
Presynaptic Neuron
REUPTAKE
Postsynaptic Neuron

Therapeutic Effects of Psychotropic Medication

Curative versus preventative effects

a. psychotropic medications relieve symptoms

b. help prevent the return of symptoms

- longer symptom free intervals between episodes
- fewer symptoms during future episodes
- relief of symptoms between episodes.

c. adjunctive therapy in the treatment of mental disorders

d. not to be relied upon as sole treatment

Psychotherapy

- Useful in nearly every Psychiatric disorder
- Different changes in brain function
- May be imperative for response in patients with trauma history
- Generally synergistic with meds
- CBT most studied

Long-term Maintenance Treatment

1. Not necessary for all patients
2. Not predictable which patients require long-term therapy
3. Long-term therapy is used for those patients who respond and have recurrent episodes
4. Consider long-term side effects in decision
5. Consolidate of doses to improve compliance
6. Routine follow up is imperative

Patient Education

- Should include risks of untreated illness/recurrence
- Should include family/caretakers
- Should verify understanding by patient
- Should facilitate adherence/compliance

PATIENT EDUCATION

- NONCOMPLIANCE LEADS TO:

  - HIGH RATE OF RECIDIVISM
  - HIGHER COST OF TREATMENT
  - MAY POTENTIALLY LEAD TO POOR PROGNOSIS
  - OVERALL LOSS OF FUNCTIONING

BASIC POINTS OF INFORMATION

- type(s) of psychotropic medication(s)
- name(s) of psychotropic medication(s)
- dose patient is receiving
- purpose of medication
- common side effects of medication(s)
- what to do if side effects should happen
- signs of severe toxicity
- drug-drug and drug-food interactions
- appropriate administration

SIDE EFFECTS

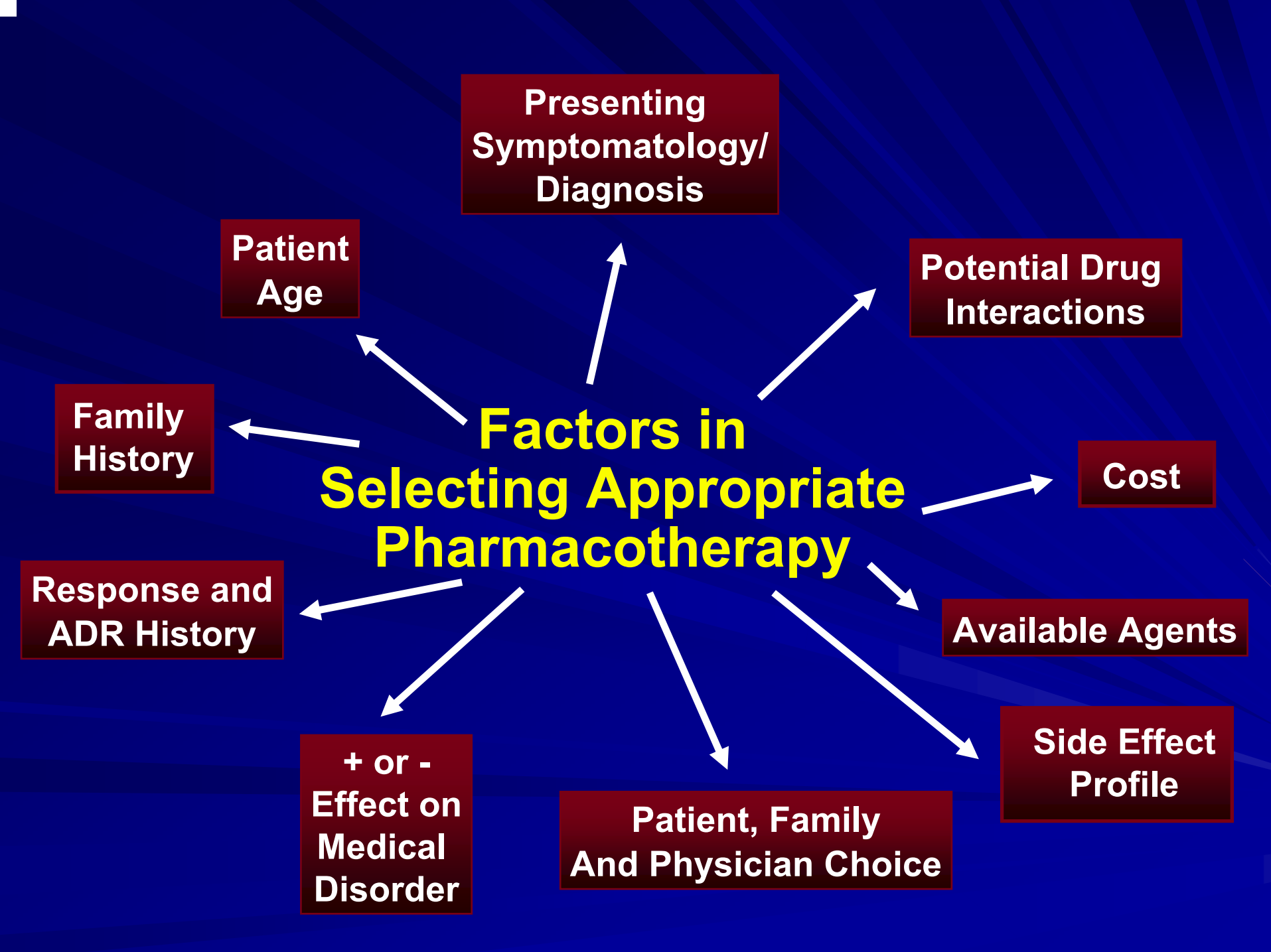
- LIMIT DISCUSSION TO COMMON SIDE EFFECTS
- DISCUSS PATIENTS' EXPERIENCE
- DISCUSS SEEKING HELP FOR SIDE EFFECTS
- SUGGESTIONS FOR MINIMIZING SIDE EFFECTS

Consent for Treatment

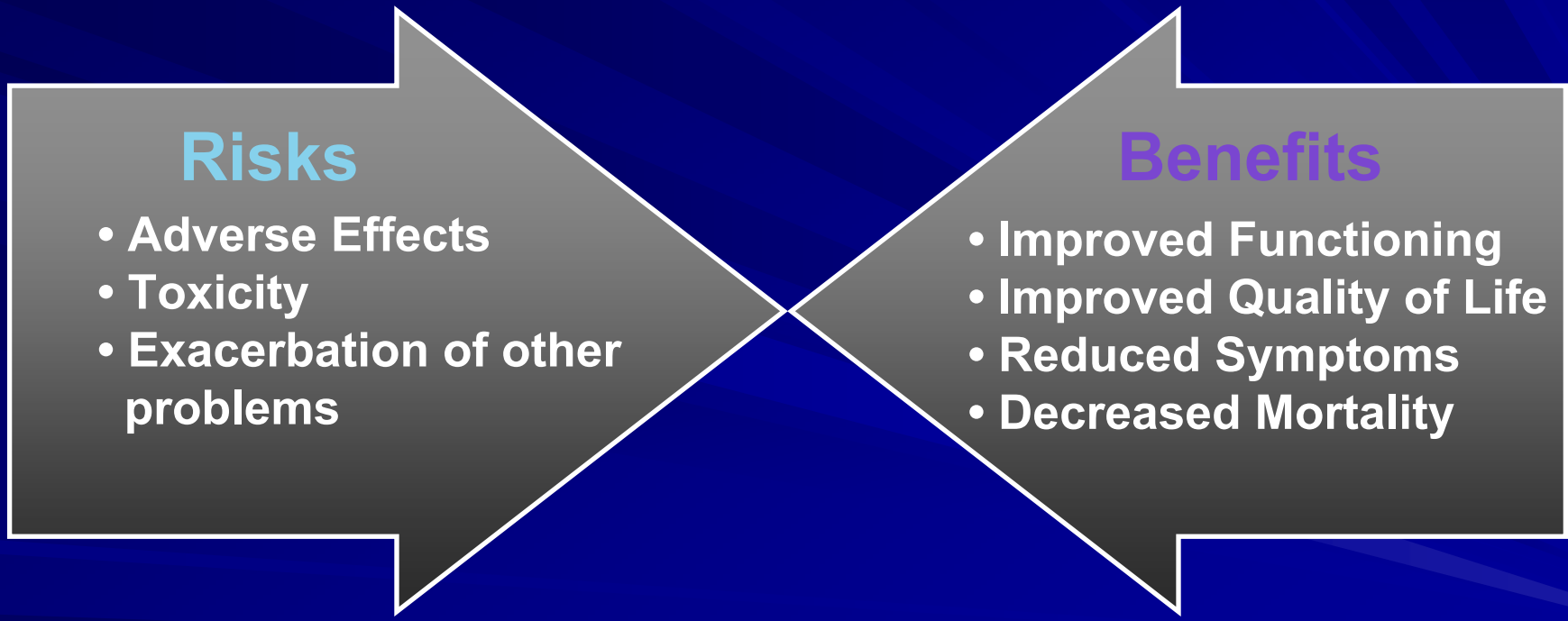
- Patient, family, guardian
- Should occur with any changes in medication
- Unusual uses of medication

RESPONSE TO MEDICATION

- DISCUSS REALISTIC EXPECTATIONS
- RELATE TO THE PATIENT'S EXPERIENCE

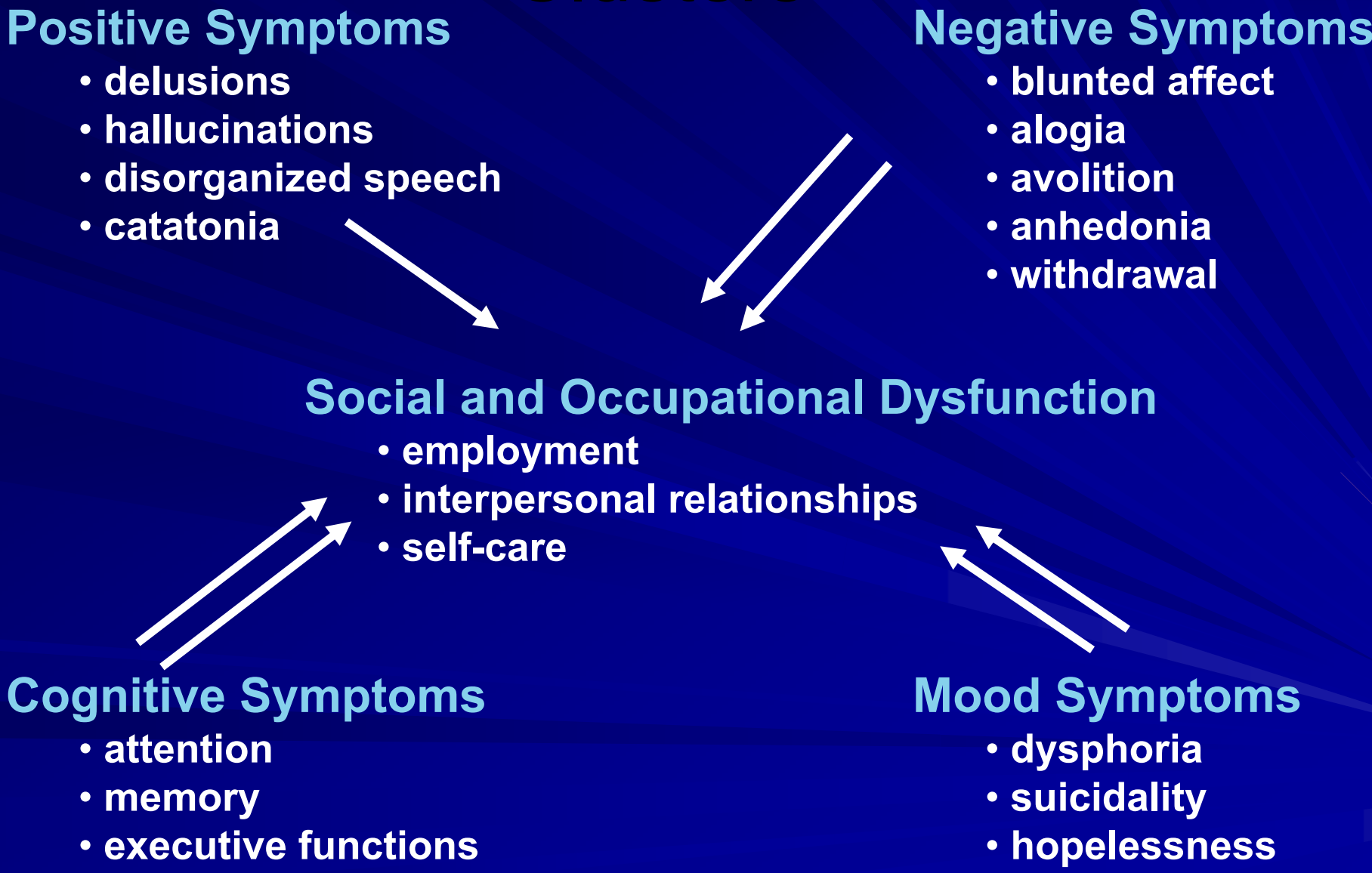

Factors in Selecting Appropriate Pharmacotherapy
Presenting Symptomatology/ Diagnosis
Patient Age
Potential Drug Interactions
Family History
Cost
Response and ADR History
Available Agents
+ or - Effect on Medical Disorder
Patient, Family And Physician Choice
Side Effect Profile

Risk: Benefit for Drug Therapy



Questions?

Schizophrenia: Core Symptom Clusters



Target symptoms for antipsychotic treatment

-hostility
-agitation/anxiety
-insomnia
-suspiciousness
-poor self-care habits
-mutism
-social withdrawal
-loose associations
-inappropriate affect
-delusions
-hallucinations
-preoccupations

Antipsychotic Medications

- Atypical Antipsychotics
- Typical/Conventional Antipsychotics
  - Low potency (Thorazine, Mellaril)
  - High potency (Haldol, Prolixin)
- Long-acting Antipsychotics
  - Prolixin-D®
  - Haldol-D®
  - Risperdal Consta ®

Adverse Effects of Typical Antipsychotics

1. Low potency- Drowsiness

   usually resolves within 2 weeks

2. High Potency- Extrapyramidal Side Effects (EPS)

   Dystonias

   Pseuoparkinsonism

   Akathisia

   All- Tardive Dyskinesia- need routine evaluation using AIMS or DISCUS

Adverse Effects of Antipsychotics

3. Low potency- Anticholinergic side effects: tolerance usually develops to these side effects over 1-2 months.
    - -dry mouth
    - -blurred vision
    - -constipation
    - -urinary retention
    - -nasal congestion
    - -increase in heart rate
4. Low potency- Cardiovascular side effects
    - -postural hypotension
    - -arrhythmias/palpitations
5. High potency- Neuroleptic Malignant Syndrome

Medications Used to Treat EPS and Dosage Ranges

TRADE NAME	GENERIC NAME	T1/2	DOSE DYSTONIA	DOSE PSEUDO PARKINSON	DOSE AKATHISIA
Artane®	trihexyphenidyl	3-4	-	4-20	-
Ativan®	lorazepam*	10-20	0.5-10	-	0.5-10
Benadryl®	diphenhydramine*	2-8	25-50 IM	50-200	-
Cogentin®	benztropine*	6-48	1-2 IM	4-10	-
Inderal®	propranolol	4-6	-	-	90-160
Symmetrel®	amantadine	10-28	-	100-400	-

* - available in intramuscular dosage form

ANTIPSYCHOTIC SIDE EFFECT PROFILE

DRUG	SEDATION	E.P.S.	ANTICHOL.	CARDIOV.
Thorazine	High	Moderate	Mod	High
Mellaril	High	Moderate	High	High
Serentil	Moderate	High	Mod	High
Prolixin	Low	High	Low	Low
Haldol	Very Low	Very High	Low	Low
Clozaril	High initially	Very Low	Very Low	Low
Risperdal	Moderate	Low-Moderate	Very Low	Low
Zyprexa	High Initially	Low	Low	Low
Seroquel	Moderate	Very Low	Very Low	Low
Geodon	Low	Very Low	Low	Moderate
Abilify	Very Low	Very Low	Very Low	Low

Atypical Antipsychotic Agents

"Atypical" because:

- lower potential for extrapyramidal effects
- greater efficacy in negative symptoms
- greater efficacy in refractory illness
- lower potential to cause prolactin elevations
- greater 5HT-2/D2 receptor effects

New and “off label” uses

- Bipolar
  - Mania
  - Mixed
  - Maintainence
  - depression
- Resistant Depression
- Refractory OCD
- Borderline
- Autism Spectrum
- Anxiety
- Sleep

Atypical Antipsychotic Agents

Agent	Dosing Range
Clozapine (Clozaril)	200 - 900 mg/day
Risperidone (Risperdal)	1 - 8 mg/day
Olanzapine (Zyprexa)	7.5 - 30 mg/day
Quetiapine (Seroquel)	150-800 mg/day
Ziprasidone (Geodon)	40-160 mg/day
Aripiprazole (Abilify)	10-30 mg/day

Clozapine

- Dibenzodiazepine
- $t_{1/2}$ - approximately 12 hrs
- Doses initiated at 12.5-25 mg/day, titrated by 25-50 per day x 2 weeks to target dose

Clozapine

Beneficial in positive and negative symptoms, good evidence in treatment resistant patients

May need 6 month trial in treatment resistance

Clozapine - Adverse Effects

- Weight Gain- DM, Dyslipidemia
- Sedation
- Hypersalivation
- Constipation
- Tachycardia
- Cardiomyopathy
- Orthostasis
- Seizures
  - < 300 mg/day - 1%
  - 300 - 599 mg/day - 2.7%
  - ≥ 600 mg/day - 4.4%

Clozapine - Adverse Effects

- Agranulocytosis (ANC < 500/mm^3)
  - risk is 0.38% vs. 1-2% overall
  - can happen anytime and with any dose
  - most common early in therapy <6m
  - leukopenia is predictive
    - don't initiate if WBC is < 3500/mm3
    - WBC 3000-3500, or drops by 3000 in 1-3 wks - increase monitoring to 2x/wk
    - WBC 2000-3000 or ANC 1000-1500 - stop clozapine, resume if WBC > 3500
    - WBC <2000 or ANC <1000 - d/c clozapine - no rechallenge

Risperidone

- $t_{1/2}$ - approximately 20 hrs including metabolite
- Lower doses and slower titration in young and old
- Average dose is 4-6 mg/day

Risperidone - Adverse Effects

- Dose-related extrapyramidal effects
- Akathisia
- Sedation/insomnia/anxiety
- Orthostasis
- Nausea/vomiting
- Prolactin increases
- Wt- 18% gained 7% of baseline in short term trials vs. 9% on placebo
- Tardive Dyskinesia - <1%

Olanzapine

- $t_{1/2}$ - approximately 27-38 hrs
- Doses initiated at 10-20 mg/day, titrated in 5 mg increments
- Average dose is 10-20 mg/day

Olanzapine - Adverse Effects

- Somnolence
- Orthostasis/dizziness
- Akathisia
- Weight gain 29% gained 7% of baseline in short term trials vs. 3% on placebo
- DM, lipids
- Dose-related increases in EPS and prolactin
- Elevated hepatic transaminase

Quetiapine

- $t_{1/2}$ - approximately 7 hrs
- Doses initially titrated to 150 mg/day
- Average dose is 400-800 mg/day for schizophrenia

Quetiapine - Adverse Effects

- Drowsiness
- Agitation
- Weight Gain- 23% gained 7% of baseline in short term trials vs. 6% on placebo
  - May be dose related
- DM, Lipids
- Constipation
- Dry Mouth
- Orthostasis
- Mild increase in hepatic transaminase

Ziprasidone

- T ½ - 6-8 hrs
- Doses 40-160mg/day
- 50% less absorption without food
- IM available 20mg/dose
  - NTE 40mg in 24hrs

Ziprasidone- Adverse Events

- QTC prolongation
  - Rarely clinically significant
  - Stop if over 500ms
  - Greater risk with low potassium or magnesium
- Sedation- 14%
- EPS- 5%
- Weight gain- 10% gained 7% of baseline in short term trials vs. 4% on placebo
- Long-term wt “neutral”
- Minimal effect on lipids

Aripiprazole

- High affinity
  - 90+% D2 occupancy at clinical doses
- Partial agonist
  - 25-30% of Dopamine activity
- T ½ 3-5 days

Aripiprazole- Adverse Effects

- Nausea
- Headache
- Insomnia
- WT- 8% gained 7% of baselline in short term vs. 3% on placebo
- Long term wt “neutral”
- Minimal effect on lipids

Long acting injectables

- Known compliance or noncompliance
- Lower peak levels of drug
- Loading strategies for Decanoates
- 2-3 wk lag for Risperdal Consta
- Lower rehospitalization rates

Mirror Image Studies Comparing Number of Hospital Days - Depot v. PO

Study	No. of Patients	Duration (yrs)	No. Hosp Days on oral	No. Hosp Days on depot	p value
Denham & Adamson,1973	103	12-40 mo	8,719	1,335	10^{-15}
Devito et al, 1978	122	1	3,329	314	10^{-2}
Freeman, 1980	143	12	19,510	4,376	10^{-25}
Gottfries and Green, 1974	36	2-6	12,390	2,940	10^{-4}
Marriott and Hiep, 1976	131	≥1	12,434	5,619	10^{-5}
Tegeler & Lehmann, 1981	78	5	19,110	3,276	10^{-5}

Davis JM, Matalon L, Watanabe MD, Blake L. Drugs 1994;47(5):741-773.

Pharmacologic Treatment of Schizophrenia

- Consider contraindications to specific medications
- Choose based on:
  - Past response
  - Side effects
  - Patient preference
  - Planned route of administration
- Clozapine is Gold Standard for treatment restistance
- No evidence for Polypharmacy
- Negative symptom response is modest even with Atypicals

Questions?

Antidepressant uses

- Major Depression
- Dysthymia
- Panic Disorder
- Generalized Anxiety
- OCD
- PTSD
- Bipolar Depression
- Eating Disorders
- Premenstrual dysphoric disorder

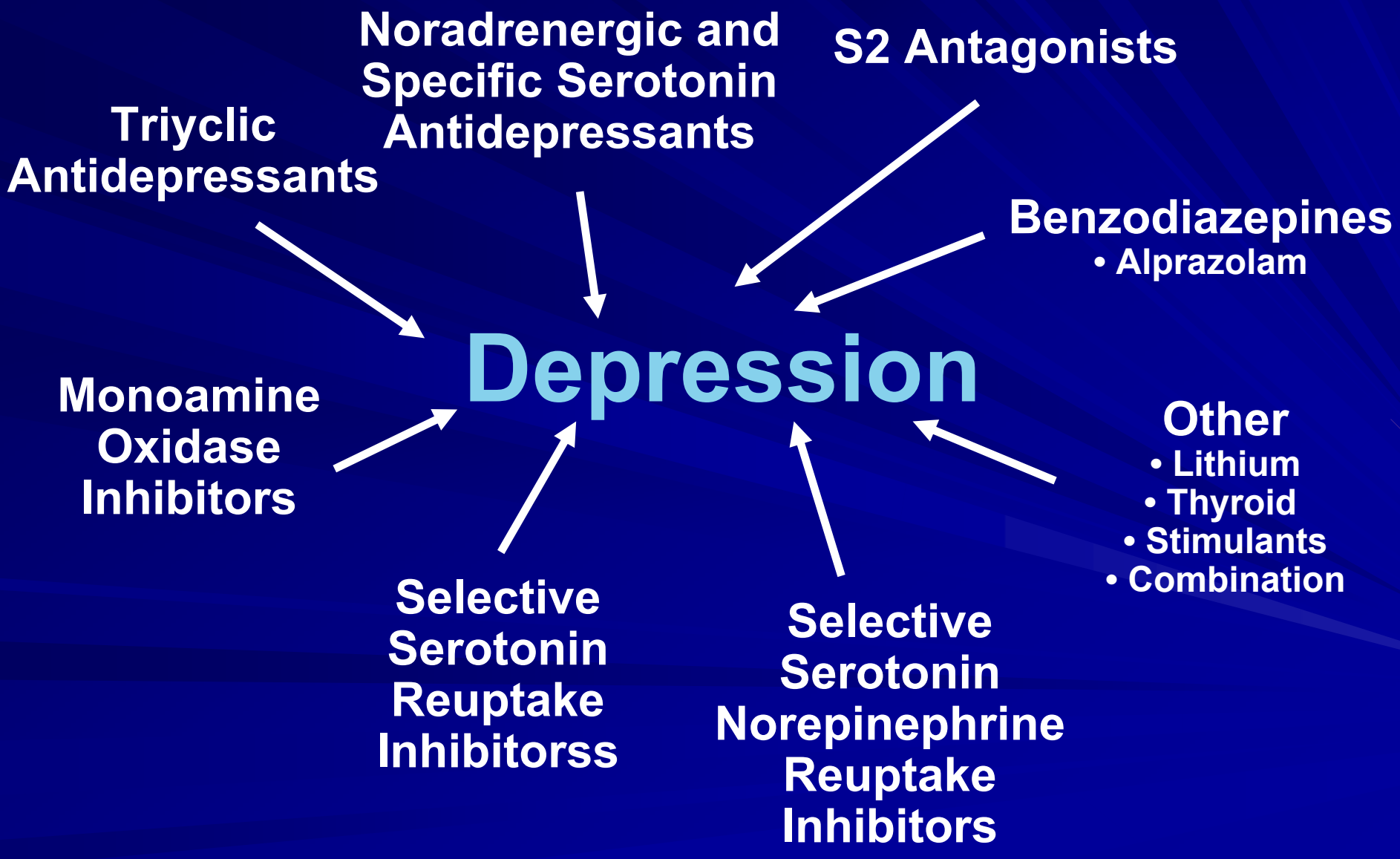
Target Symptoms for Antidepressant Treatment

- -mood/feeling
  - sadness
  - irritability
  - pessimism
  - self-reproach
  - anxiety
- -suicidal thoughts
- -hopelessness
- -guilt
- -no enjoyment

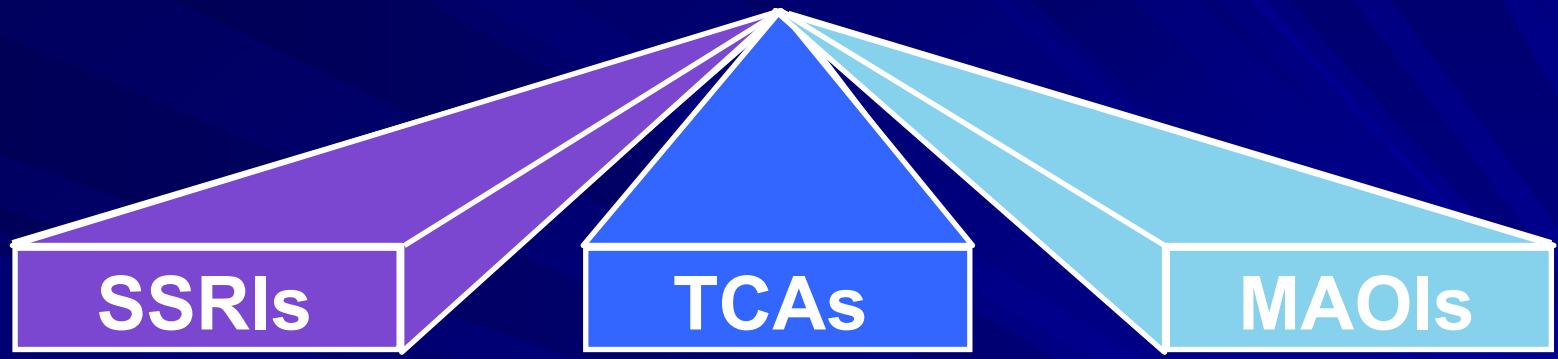
-vegetative signs

- slowed movement
- slowed thinking
- poor memory and concentration
- fatigue
- constipation
- decreased sex drive
- anorexia
- weight change
- insomnia

Antidepressant Options for Depression



Antidepressants



- Fluoxetine
- Sertraline
- Paroxetine
- Fluvoxamine
- Citalopram
- Escitalopram

- Amitriptyline
- Desipramine
- Doxepin
- Imipramine
- Nortriptyline
- Clomipramine

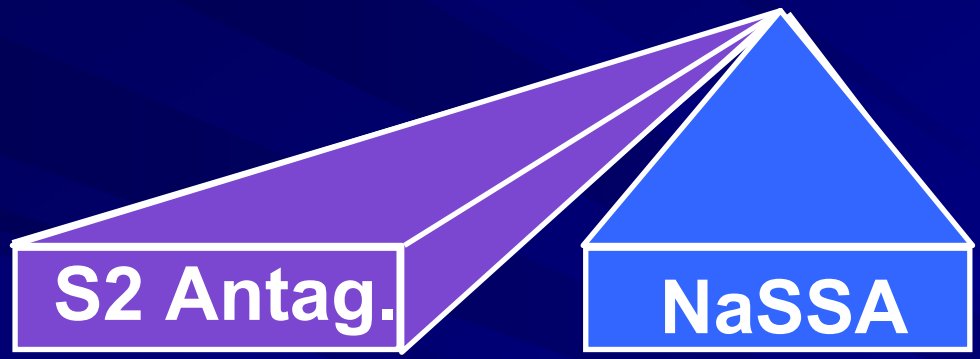
- Phenelzine
- Isocarboxazid
- Tranycypromine

Antidepressants

- Venlafaxine
- duloxetine

- Trazodone
- Nefazodone

Antidepressants

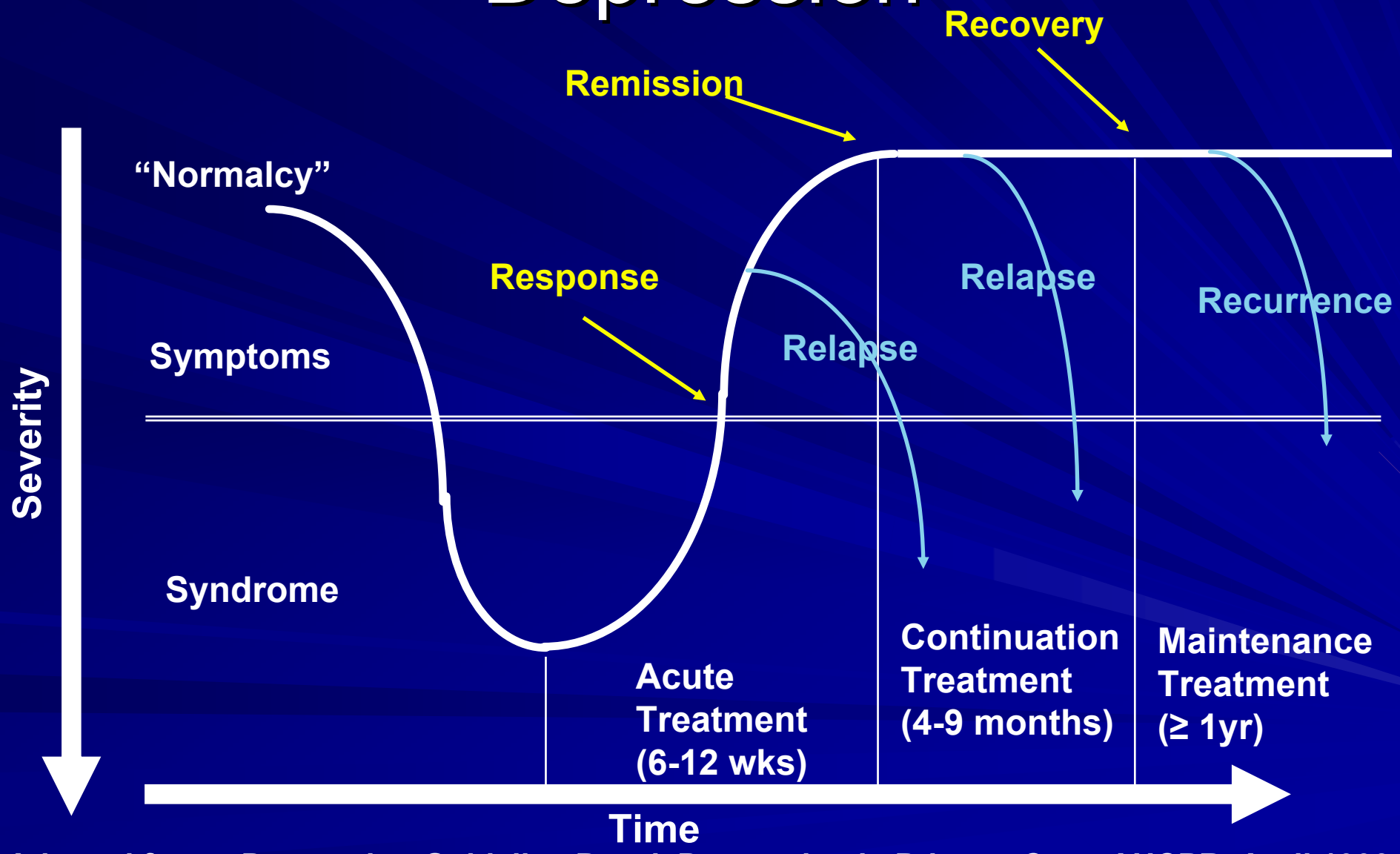


- Nefazodone
- Mirtazapine

MAO Inhibitors

- MAO “destroyers” irreversible
- Just say No
- Multiple food and drug interactions
- Toxic in OD
- Must allow several weeks off meds when switching

Phases of Treatment for Depression



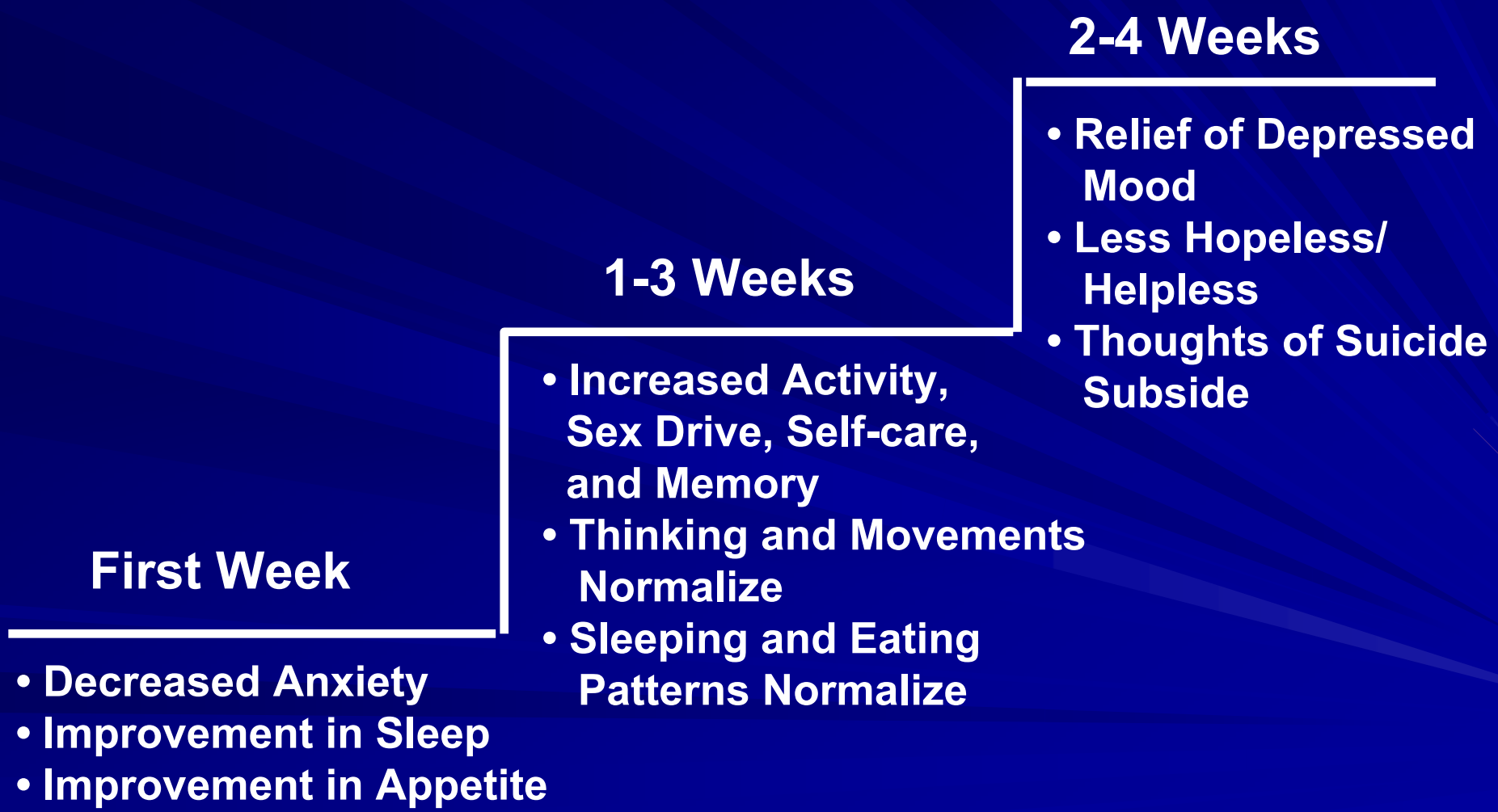
Adapted from: Depression Guideline Panel, Depression in Primary Care, AHCPR, April 1993.

Initiation of Therapy

- • Dosing
  - – - Underdosing is primary problem with TCAs
  - – - Initiate therapy with divided doses to minimize ADRs
  - – - SRIs can be initiated at therapuetic doses
  - – - consider age of patient and adjust accordingly

- • Dosage Adjustment
  - – - Target dose should be achieved as quickly as tolerated
  - – - If NO CHANGE in 2 wks consider change
  - – - Maximal response in 8 weeks of therapy
  - – - Generally flat dose response for SSRI
  - – - Venlafaxine becomes SNRI at higher doses

Symptom Remission



Survival

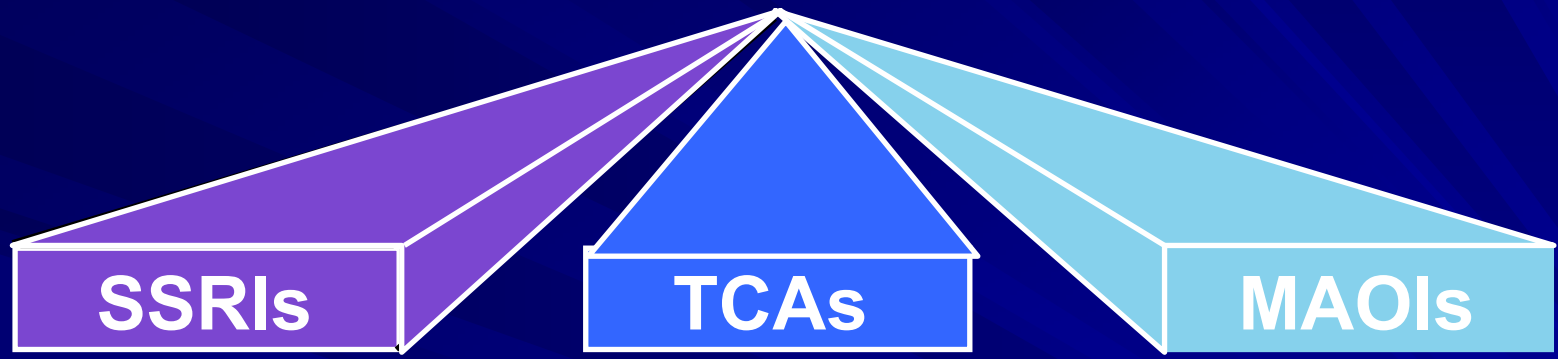
- Recurrence rate of 30% in 3 years at full dose, 70% at half dose of Imipramine
- 50-70% of patients will relapse over 1 year period without maintenance treatment
- Risk of relapse continues to increase over time
- Risk of relapse significantly reduced with maintenance therapy - 80-90% remain well during first year of maintenance therapy
- Interpersonal Psychotherapy does not improve survival significantly over medication management

- Frank, et.al., *Arch Gen Psychiatry* 1990;47:1093.
- Frank, et.al., *J Affect Dis* 1993;27:139.
- Kupfer, et.al., *Arch Gen Psychiatry* 1992;49:769.

Medication Maintenance

- 1. Goal is preventing new episode of depression
- 2. Potential Candidates:
- Three or more episodes of major depressive disorder
- Two episodes and:
  - a. Family history of bipolar disorder in 1st degree relative
  - b. History of recurrence within 1yr after d/c of effective pharmacotherapy, or poor symptom control in continuation
  - c. Family history of recurrent major depression in a first degree relative
  - d. Onset prior to age 20, or after age 60
  - e. Both episodes were severe, sudden or life threatening in the past 3 years
  - f. Concurrent depression and dysthymia
- Adapted from: Depression Guideline Panel, Depression in Primary Care, AHCPR, April 1993.

Antidepressant Side Effects



- Nausea
- Diarrhea
- Headache
- Nervousness
- Insomnia
- Sexual Dysfunction

- Toxic in OD
- Drowsiness
- Dry Mouth
- Blurred Vision
- Constipation
- Hypotension
- Weight Gain
- Cardiac Effects
- Urinary Retention
- Sexual Dysfunction
- Memory Impairment

- Toxic in OD
- Hypotension
- Dizziness
- Weight Gain
- Insomnia
- Cardiac Effects
- Constipation
- Sexual Dysfunction
- Palpitations
- Hypertensive Crisis

Antidepressant Side Effects

- Nausea
- Diarrhea
- Headache
- Hypertension
- Nervousness
- Insomnia
- Sexual Dysfunction

- Insomnia
- Seizures
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- Cardiac Effects

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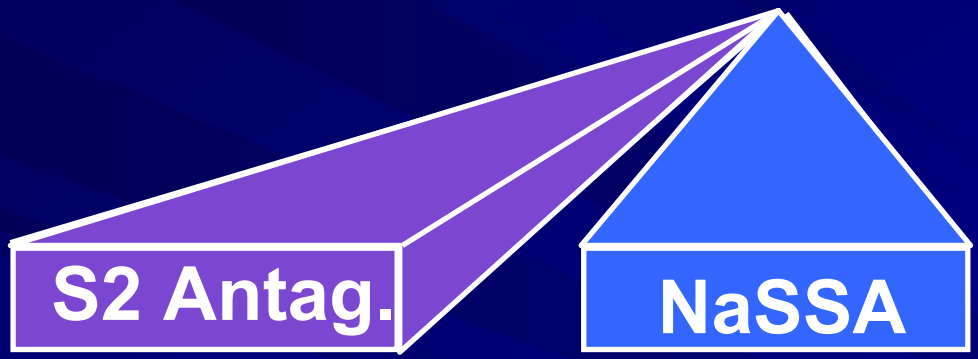
Antidepressant Side Effects



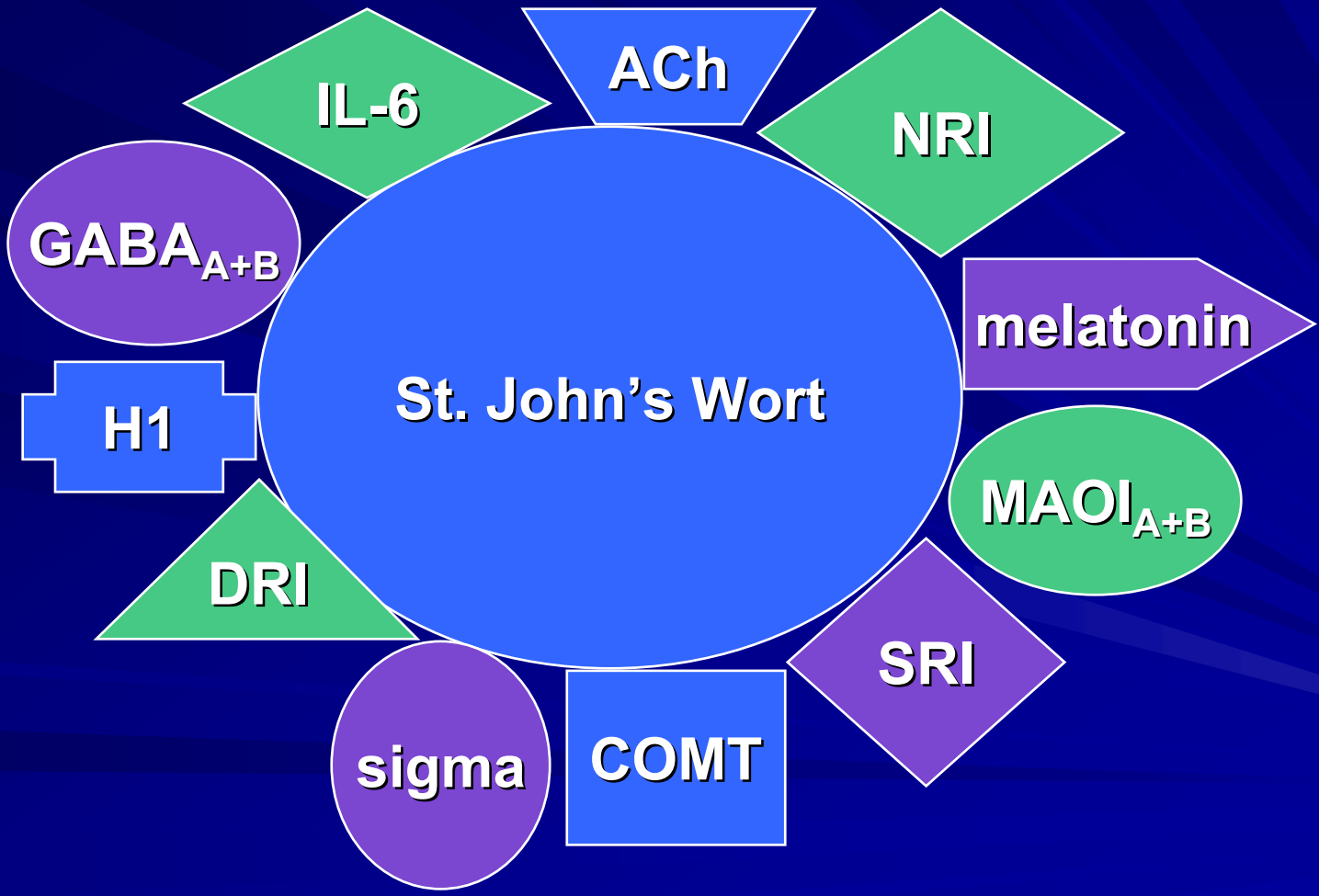
- constipation
- lightheadedness
- postural hypotension
- headache
- dry mouth
- nausea
- somnolence
- confusion
- visual changes
- sexual dysfunction
- rare liver failure

- sedation
- nausea
- weight gain
- dizziness
- dry mouth
- constipation
- visual changes
- pruitis/rash
- sexual dysfunction
- agranulocytosis

St. John's Wort

Hypericum perforatum

Pharmacologic Mechanisms of St. John's Wort



St. John's Wort

- May be effective for mild-moderate depression
- NIMH trial showed no benefit

Questions?

MANIC-DEPRESSIVE (BIPOLAR) ILLNESS

Membrane stabilizers

Lithium carbonate/ Lithium Citrate

Tegretol (carbamazepine)

Depakote (valproic acid) (sodium valproate)

Lamictal (lamotrigine)

Neurontin (gabapentin)

Topamax (topiramate)

Omega 3

Target Symptoms for Mania

- -mood disorder
  - irritability
  - expansive
  - manipulative
  - labile
  - elevated
- -hyperactivity
  - sleep disturbance
  - pressured speech
  - increased motor activity
  - assaultive/threatening
  - distractibility
- -delusions
  - sexual
  - persecutory
  - religious
  - grandiose
- -schizophreniform
  - loose associations
  - hallucinations

Lithium formulations

- Lithium carbonate capsules or tablets - Eskalith®, (1 capsule or tablet = 300 mg = 8 mEq Lithium)
- Lithium carbonate time-released tablets -
  - Eskalith SR (1 tablet = 450 mg = 12 mEq Lithium)
  - Lithobid (1 tablet = 300 mg = 8 mEq Lithium)
- • Lithium citrate syrup - Lithionate®
  - (1 teaspoonful = 5 ml = 560 mg = 8 mEq Lithium)
- Target trough levels 0.6-1.4

Lithium Pre-drug Work-up

- serum electrolytes
- BUN/Sr. Creatinine
- Thyroid function tests - TSH, T3RU, T4
- Urinalysis
- Pregnancy Test
- Complete blood count with differential
- ECG ?

Side Effects of Lithium Therapy

- 1. Early side effects
- - Gastrointestinal
- -fine hand tremor
- -fatigue, muscle weakness, dazed feeling
- -increased thirst and frequent urination

- 2. Persistent side effects
- - fine hand tremor
- - increased thirst and urination
- - increase in white blood cell count

Side Effects of Lithium Therapy

- 3. Late side effects: moderate toxicity.
- Lithium ≥1.5 mEq/l
- - more severe hand tremor, coarsening of the tremor
- - reappearance of GI symptoms
- - confusion
- - hypothyroidism
- -ataxia
- -slurred speech

Side Effects of Lithium Therapy

- 4. Severe toxicity: overdose effects
- Lithium ≥2.5 mEq/lr

- -seizures -coma
- -cardiovascular collapse -death

Advantages of Lithium Therapy

- - will control a manic patient without a "drugged effect"
- - will normalize mood
- - very good prophylactically to decrease mood swings
- - relapses, when they occur, are less severe and usually shorter in duration
- - blood concentration monitoring allows careful titration to therapeutic concentration
- - low drug cost

Disadvantages of Lithium Therapy

- -narrow range of therapeutic blood concentrations, requires close monitoring to prevent toxicity
- -patient compliance and understanding of the warning signs of toxicity is important
- -lag period before therapeutic effect in manic patients
- -prophylactic effect may take 6 months to 1 year to maximize
- -rapid cyclers are poor responders
- - family "losses" a fun loving, energetic family member - important aspect of education

Valproic Acid

- Depakene • 100, 250, 500 mg capsules
- Depakote • 125, 250, 500 tablets ()
- Depakote ER - once daily

- • 250mg/5 cc suspension

- • rapid titration – 20-30 mg/kg

Carbamazepine

- Minimal use due to enzyme induction
- Induces metabolism of all antipsychotics

Pre-drug Work-up

- Carbamazepine and Valproic acid

- Chemistry Profile - electrolytes, albumin, and total protein
- BUN/Sr Creatinine
- Thyroid function tests - TSH, T3RU, T4
- Pregnancy Test
- Complete blood count with differential
- Liver function tests - AST (SGOT), ALT (SGPT), Alkaline Phosphatase, GGT

Advantages of Carbamazepine and Valproic Acid Treatment

- - beneficial in rapid cycling persons
- - alternative for persons not responsive or who do not tolerate lithium
- -will normalize mood
- -very good prophylactically to decrease mood swings
- -relapses, when they occur, are less severe and usually shorter in duration
- -blood concentration monitoring allows careful titration to therapeutic concentration

Disadvantages of Carbamazepine and Valproic Acid Treatment

- - hepatotoxicity and blood problems may limit therapy
- -narrow range of therapeutic blood concentrations, requires close monitoring to prevent toxicity
- -patient compliance and understanding of the warning signs of toxicity is important
- -lag period before therapeutic effect in manic patients
- -prophylactic effect may take 6 months to 1 year to maximize
- -expense of blood concentration
- - family "losses" a fun loving, energetic family member - important aspect of education

Lamotrigine- Lamictal

- Approved for maintenance
- Not effective for acute manic episodes
- Delayed time to intervention for depression
- Side effects
  - Headache
  - Nausea
  - Insomnia
  - Rare 0.1% severe rash

Gabapentin- Neurontin

- placebo more effective in controlled trial
- Sedation
- Dizziness
- Ataxia
- No drug interactions

Topirimate- Topamax

- Mania trial failed- manufacturer stopped development
- Side Effects
  - Sedation
  - Dizziness
  - Ataxia
  - Wt loss

Omega 3 fatty acids

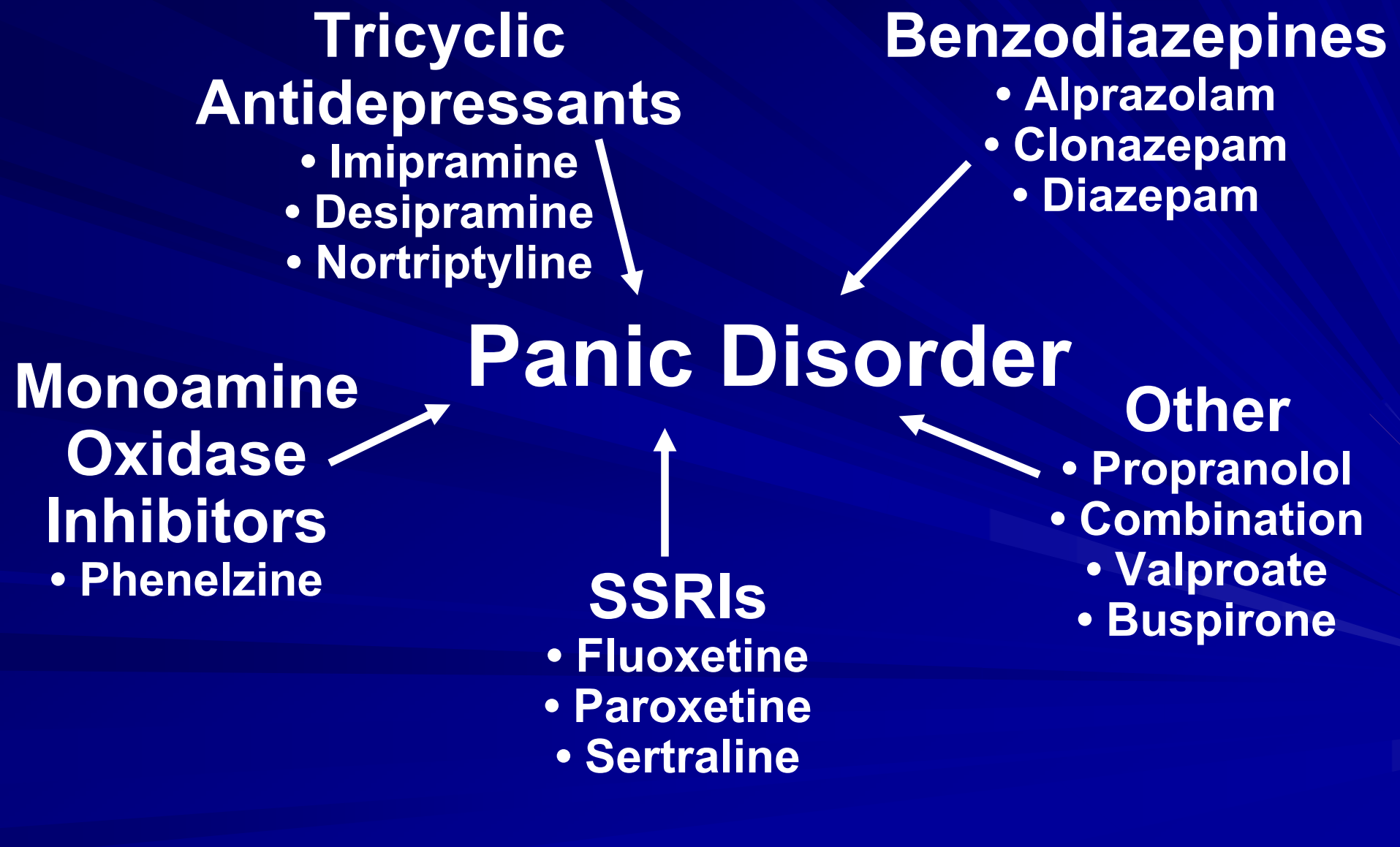
- May inhibit neuronal signal transduction paths in a manner similar to Li and Depakote
- 9 grams vs. olive oil
- 30 pts for 4 months
- Longer remission P= .002
- Arch Gen Psych 1999 56: 413-14
- May be useful for aggression/depression in BPD- AJP 2003 160:167-9
- Not better than placebo in MD- AJP 160:996-8
- Helpful as adjunct- Eur Neuropsychopharmacology 13:267-71

Questions?

Anxiolytics

- SSRI
- TCA
- MAOI
- Benzodiazepines
- Buspirone
- Antihistamines
- Beta blockers

Treatment Options for Panic Disorder



Benzodiazepines

- Overutilized vs. Underutilized
- Abuse potential- $2-5/pill “street value”
- Rapid onset of action
- Tolerance after 4-6 wks
- Withdrawal risk
- Good for agitation in mania, schizophrenia
- Long ½ life drugs less abused?

Target Symptoms for Anxiety

- • Motor Tension
  - – - Trembling, twitching or feeling shaky
  - – - Restlessness
  - - Muscle Tension, aches or soreness
  - - Easy fatigability
- • Autonomic Hyperactivity
  - – - Shortness of breath
  - – - Sweating, cold clammy hands
  - – - Palpitations or tachycardia
  - – - Dry mouth
  - - Dizziness or lightheadedness
  - - Frequent urination/ urgency
  - - Nausea, diarrhea, GI distress
  - - "Lump in throat"

Target Symptoms in Anxiety (continued)

- • Vigilance and Scanning
  - – - Feeling keyed up or on edge- Insomnia
  - – - Easy to startle - Difficulty concentrating
  - – - Irritability

- • Panic (in addition to above)
  - – - Choking - Fear of going crazy
  - – - Paresthesias - Chest pain/discomfort
  - – - Fear of dying

SLEEP DISORDERS/HYPNOTICS

- • Key to treatment is accurate diagnosis
- • Sleep history is imperative
- • Nonpharmacological interventions are crucial elements to treatment strategy

Non-benzo Sedatives

- Ambien (zolpidem)
- Sonata (Zaleplon)
- Recommended for 7-10 days only
- Surprise
- Only action at Benzo receptor
- Selective Benzodiazepine
  - No amnesia
  - No muscle relaxation

Questions?